# SOME NEW SOUTH AFRICAN SUCCULENTS. Part III.*

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(Plate I.)

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## CRASSULACEÆ.

Cotyledon nana, spec. nov. (Sect. *Spicatæ.*)

Acaulis vel subacaulis. Radix tuberosa. Folia plerumque radicalia, crassa, cuneato-ovalia, superne sub-caniculata, subtus convexa, purpurea. Pedunculus 10–15 cm. altus; inflorescentia dichotomo-cymosa, pauciflora. Flores breviter stipitati, erecti, tubulosi, tubo cylindrico, sub-inflato; limbo amplo, purpureo; laciniis brevibus triangularibus radiatis demum recurvis.

Leaves 10–15 mm. long (in wild plants) and 5–8 mm. broad, fleshy, about half as thick as broad, concave or grooved in the centre, sometimes speckled with purple above. In cultivated plants the leaves are more elongate and not purple underneath. Peduncle red, the terminal inflorescence branching dichotomously, bearing 3 to 5 flowers. Pedicels short, gradually passing into the conical calyx-tube, the combined length being 10–12 mm. Teeth of calyx lanceolate, 2 mm. long, appressed to the corolla. Tube of the corolla yellowish green, slightly inflated in the upper third, 12 mm. long; the limb deep purple, rotate at first, then recurved, the segments forming about two-thirds of the limb, shaped like an equal-sided triangle, 3 mm. long. Anthers of upper stamens just reaching the mouth of the tube, the other stamens much shorter and their anthers smaller. Carpels 5; squamæ cuneate-elongate, greenish. Follicles 5, very pointed, 8 mm. long.

The plant would agree with Burchell's description of *C. parvula*, with the exception of the statement "pedicels capillary," as these are short and stout in our plant.

* Part I. in Transactions of the South African Philosophical Society, vol. xviii., 1907. Part II. in Transactions of the Royal Society of South Africa, vol. i., p. 403, 1909.

Between stones on the slopes of the Nieuwveld Mountains near Beaufort West. Flowering in January. Altitude: 1,200 m. Marloth, No. 4689.

## AIZOACEÆ.

MESEMBRIANTHEMUM DESERTICOLUM, spec. nov. (Sect. 42 *Cymbiformia.*)

Planta depressa, suffruticosa, paullum ramosa, foliis subalbidis, basi connatis, trigono-inflatis, ovoideis, obtusis, marginibus rotundis. Flores terminales solitarii, breviter stipitati. Sepala 4, inæqualia; petala linearia, alba; styli 5–6.

Plant depressed, forming lumps a few inches in diam., often a few slightly elongated branches spreading on the ground. Leaves nearly egg-shaped, but slightly prismatic, the three faces convex, the angles very rounded, especially the lower one, which may be hardly indicated. Epidermis smooth, white (in the wild plant). In cultivation the new leaves are more elongated and green.

Near *M. trichotomum*, Thunb., but leaves much larger, 12–16 mm. long.

On rocky ground near Angra Pequena, in Great Namaqualand. Flowering in September. Marloth, No. 4688. (See Fig. 5.)

MESEMBRIANTHEMUM MARLOTHII, Pax. (Amended description.) Sect. *Rostellata* (Berger, p. 115).

The original diagnosis of this species was based on sterile specimens collected in 1886 by the author (Engler's Botan. Jahrb., 1888, vol. x., p. 13).

Flowers solitary, terminal, sessile, supported by two leaves, which are fringed like the others. Sepals 5, fringed like the leaves, obovate, pointed; petals white, numerous, connate at base, linear, recurving above, the upright part being 7 mm., the recurved portion 3 mm. long. Stamens 15–20; stigmas 5.

Very frequent on rocky as well as sandy ground in the littoral belt (Namib) of Great Namaqualand. Flowering in spring. Marloth, No. 4676.

The fringe of hairs around the apex of the older leaves originates in a peculiar way. The young leaves are shortly cylindrical and surrounded at their upper third by a ring of retrorse, fully turgescent hairs, which may be looked upon as elongated papillæ, pointing downwards. Later on the apex of the leaf shrivels and leaves the fringe of hairs on the leaf in organic connection with the remaining part. The origin and structure of these hairs indicate that they assist in the absorption of dew and water

from fogs. This ability of the plant probably accounts for its universal occurrence in the desert, even in localities where no other permanent vegetation exists.

MESEMBRIANTHEMUM NAMIBENSE, spec. nov. (Sect. *Rostellata.*)

Suffrutex pedalis, ramosissimus. Folia in ramulis junioribus ovali-trigona, obtusa, papulosa, basi connata; in adultis ad spinas breves reducta. Flores terminales, solitarii, sessiles ex centro foliorum apicalium; sepala 5, cylindrico-elongata, obtusa, papulosa, non-fimbriata. Petala alba, linearia, basi connata, sepala haud superantia; stamina 15–20; styli 5, filiformes.

A hemispherical shrublet, from a few inches to a foot or more in diam. In summer dark in colour, with no sign of green, as the leaves have dropped off. The young shoots appear in winter and spring, bearing several pairs of 3-edged, ovate, blunt leaves, joined at their base, mostly green, but often reddish. Later on the leaves shrivel up, while the internodes between the pairs increase in length and diam., each joint retaining the remains of the two leaves as two oppositely standing little spines. The branches have a slightly moniliform appearance, but not as distinctly as in *M. moniliforme.* The development of the leaves into spines is somewhat similar to that of *M. Marlothii*, with which this species has been confused up to the present, as it grows intermingled with it and resembles it somewhat, at least in summer. In that species, however, the leaves themselves form the joints, which slightly sheath over another, their apex only shrivelling and remaining as mucro, while the upper margin of the joined pair of leaves remains covered with a fringe of long white hairs absent in *M. namibense.*

The same difference occurs in the sepals of the flower. They are similar to the leaves, viz., blunt and without a fringe, while in the other species they bear a mucro and are amply fringed.

Leaves of the young shoots (free portion) 3–4 mm., joints of adult branches 4–5 mm. long and of the same diameter. Flowers shortly tubular in shape, hardly opening, petals white, slightly recurved above the sepals; diam. of flower 6–9 mm.

Frequent in sandy soil of the Namib near the coast as well as further inland. Flowering at Angra Pequena in September. Marloth, No. 4686.

MESEMBRIANTHEMUM MITRATUM, spec. nov. Sub-genus TRIQUETRA. (New Sect. *Mitrata.*)

Suffrutex pedalis, ramis erectis, angulatis. Folia dua in apice ramorum terminalia, pollicaria, basi connata, lateribus superioribus mutue adpressa, residuo membranaceo foliorum duorum præcedentium inclusa, corpuscu-

lum terminale, conico-ovoideum, mitram referens. Flos stipitatus in corpusculo inclusus, demum latere corpusculi petalis exiens. Sepala 5, papillosa, tria majora apice membranaceo-ampliata; petala numerosa, linearia; styli 4, filiformes.

A very remarkable plant. Each branch terminates in a leaf-body, formed by one pair of leaves, pressed with their upper faces against each other and sheathed completely in the papery remains of last year's leaf-body. In midsummer the sheath splits at the side and the flower-bud appears, showing its white, slightly pink petals. Sepals 5, three of them enlarged by a membranous apical edge. Flower and fruit draw food and water from the fleshy corpusculum that surrounds them, until the body finally becomes exhausted and shrivels up. When the next rain comes the bud alongside of the fruit develops a short stalk and a new corpusculum, which repeats the process the following season.

The method of protecting flower and fruit against the effects of drought is the same as we find in all the species of the section *Sphæroidea*, but owing to the production of a new internode every year, an inch or two long, a shrub is produced, the branches of which, owing to their brown corky bark, appear to be dry, but are fresh in the centre, and carry the terminal fleshy corpuscula at their ends like knobs on a stick.

In the sandy deserts about ten miles east of Port Nolloth in Little Namaqualand. Flowering in January. Collected by Mr. Garwood Alston. Marloth, No. 4690. (Fig. 4.)

## EUPHORBIACEÆ.

EUPHORBIA GREGARIA, spec. nov. (Sect. *Tirucalli.*)

Frutex ramosissimus ramis rigidis, cinereo-glaucis, nudis. Cymulæ dichotomæ, 6–10, brevissime stipitatæ, ramorum apicem versus subcapitatæ. Involucrum conico-campanulatum, tomentosum, basi foliolis 2 parvis, ovatis suffultum, lobis ovato-rotundatis, fimbriatis, glandulis parvis, stipitatis, orbiculatis, latere inferiore plicatis. Capsula stipitata, depresso-sphærica, 8–10 costata, tomentosa. Semina globoso-prismatica, lævia.

The shrub is generally about 2 m. high, occasionally 3 m., and of the same diam., mostly truncate at the top. The main branches are 3–5 cm. thick, the terminal twigs of the thickness of a pencil. Cyathium small, 4–5 mm. in diam. and 2–3 mm. long. Glands brown. Fruit-stalk 10–15 mm. long, capsule large, 15 mm. in diam., tomentose, yellow when ripe. Seeds prismatic on the inner side, with a deep furrow on the central ridge, smooth, white, 8 mm. long and 6 mm. in diam.

The species is very similar in habit and appearance to *E. gummifera* Boissier, but differs from it in its involucre, glands, and fruits. Just as *E. gummifera* is the dominating plant in some parts of the Namib, *e.g.*, near Tschaukaib, this species determines the character of the landscape over a considerable portion of the interior of Great Namaqualand, especially in the country between the Little Karas Mountains, the lower Fish River and the Orange River. Marloth, No. 4683. (See Fig. 7.)

EUPHORBIA ELASTICA, spec. nov. (Sect. *Tirucalli.*)

Frutex ramosissimus habitu *E. mauritanicæ*, ramis striatis, cinereo-pulverulentis, ramulis brevibus, rigidis, erectis. Folia nulla vel decidua. Cyathia pedunculata in cymulis paucifloribus aggregata, basi foliolis 2 magnis, rotundis, concavis, mucronatis, cyathio sublongioribus suffulta. Involucrum campanulatum lobis ovatis, fimbriatis, glandulis concavo-spathulatis, truncatis, apice crenulatis, basi margine involuto angustatis, extus hirtis. Ovarium stipitatum, globosum, hirtum.

A nearly spherical or somewhat egg-shaped shrub, 1–2 m. high, much branched from the base, the main branches 2–3 cm. in diam. Apparently leafless, the surface of the branches grey, covered with a whitish powder. The inflorescence on short lateral branchlets, 3-headed, the central cyathium sessile, the lateral ones stipitate, the stalk being 10–12 mm. long. Bracts 2, large, concave, almost enclosing the cyathium, each 8–10 mm. wide. Involucre and glands hairy on the outer side, the lobes ovate and fimbriate; glands brown, curving upwards from a horizontal, narrow, clawlike, basal portion, the apex truncate and wavy.

In habit the plant resembles other members of the section *Tirucalli*, but the cyathia are more like those of *E. cervicornis*. (Sect. *Treisia.*)

Little Namaqualand, near Anenous, between Port Nolloth and the higher interior, covering wide stretches of country. Marloth, 4684.

The milky juice has been used for the manufacture of rubber, but it contains much resinous matter.

EUPHORBIA HYPOGÆA, spec. nov. (Sect. *Medusea.*)

Radix napiformis. Caules plures e summo radicis, subterranei. Rami breves. 1–3, cylindracei, podariis numerosis elongatis. Folia linearia, caduca, 5–8 mm. longa. Cyathia pedicellata, erecta, solitaria vel 2–3; involucrum campanulatum segmentis fimbriatis, glandulis lunatis viridibus.

Root and main branches are underground, the short branchlets only appearing above the surface. The tubercles are elongated, nearly as long as the branch is thick, viz.: 4–5 mm., the total diam. of the branch being

about 15 mm. Leaves are present during the rainy season and about ⅓ inch long. The cyathia stand erect on peduncles which are 10 to 20 mm. long, either solitary or 2 to 3 together on the same branch. Involucre greenish red, the segments white, fimbriate; anthers dark red. The glands are dark green, shaped like the moon when about one-third full, the two horns projecting outwards. Capsule the size of a pea. Branchlets about 1–2 inches long.

In clayey soil on the Nieuwveld near Beaufort West. Altitude 1,300 m. Flowering in November. Marloth, No. 4692. (Figs. 2 and 3.)

EUPHORBIA FUSCA, spec. nov. (Sect. *Medusea.*)

Planta acaulis habitu *E. Caput Medusæ*, ramis brevibus digiti-formibus, aphyllis. Cyathia breviter stipitata, pedunculis non-persistentibus. Involucri segmenta lato-cuneata, fimbriata, fusca. Glanduli fusci, 4–5 dentati, dentibus linearibus, albidis, rariter apice bipartitis.

In habit just like *E. Caput Medusæ* with an almost globular central caudex, from which the short, finger-like branches radiate. Easily distinguished from *E. Caput Medusæ* by the smaller size and brown colour of the glands and involucre, from *E. anacantha* by the stipitate flowers, and from *E. crassipes* by the non-persistent peduncles.

Kimberley, Steynsburg, Britstown. Altitude 1,200–1,300 mm. Flowering November. Marloth, No. 4682.

## COMPOSITÆ.

OTHONNA CLAVIFOLIA, spec. nov. (Sect. *Carnosæ.*)

Caulis brevis, crassus, simplex, napiformis vel parum ramosus, ramis brevissimis. Folia pauca, carnosa, ovoidea vel clavata, apicibus ramorum aggregata. Pedunculi ex apicibus ramorum, simplices. Capitula radiata. Achenia canescentia.

The short caudex is embedded in the ground or between the gravel of fissures in the rocks 1–2 inches high, with or without a few stout, short branches. The leaves are alternate, very fleshy, either shortly club-shaped, 10–15 mm. long and half as wide, or, as in cultivated specimens, more elongate, up to 30 mm. long and 6–8 mm. in diam. in the upper part. Reddish glaucous on the wild plants, often the interior quite red as well. Scapes one-flowered, 1–2 inches long; involucre of 6–8 free, narrow-oblong, mucronate bracts, brownish green with white edges; no calycle. Rays yellow, twice as long as the involucre. Achenes oblong, curved, narrowed at both ends, canescent from closely appressed, short hairs.

Pappus white, bristles stiff and rough. Near *O. sedifolia* DC., but achenes not glabrous.

In crevices of rocks near Angra Pequena, flowering in winter and spring. Marloth, 4691. (See Fig. 1.)

## LILIACEÆ.

HAWORTHIA GRANULATA, spec. nov. (Sect. *Scabræ.*)

Acaulis, e basi prolifera et cæspitosa. Folia parum numerosa, spiralia, sub-patentia, carnosa, rigida, ovato-lanceolata, breviter acuminata, supra concava et lævia, subtus valde convexa, cinereo-viridia, tuberculis minutis concoloribus creberrime transverse subseriatis rugosa. Pedunculus gracilis, pauciflorus; flores breviter pedicellati, minutissime bracteati, perigonio obclavato, bilabiato, viridi-albido, roseo-striato, segmentis revolutis, albidis, rubro-carinatis.

The plant is in habit, inflorescence, and flowers similar to *Haworthia scabra* Haw., but the leaves are smooth on the upper face and the tubercles on the lower side, although closely adjoining each other, are not confluent.

Rosette of leaves 30–40 mm. in diam.; leaves 20–30 mm. long, 10–15 mm. broad; peduncle 15–20 cm. high, pedicels 3 mm.; perianth-tube 10 mm., the free limb 5–6 mm.

On slaty rocks of the escarpment of the Roggeveld Mountains in Verlaten Kloof, 1,300 m. Flowering in December. Marloth, No. 4217. (See Fig. 6.)